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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,420	03/18/2004	Manoj Kumar Singhal	15474US01	5543

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EXAMINER	
COLUCCI, MICHAEL C	
ART UNIT	PAPER NUMBER
2626	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/803,420	SINGHAL ET AL.	
	Examiner	Art Unit	
	MICHAEL C. COLUCCI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/03/2008 has been entered.

Response to Arguments

2. Applicant's arguments, see Remarks (pages 8-10), filed 04/03/2008, with respect to the rejection(s) of claim(s) 1-18 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Oh et al. US 5781696 (hereinafter Oh) and Belknap et al. US 7356245 B2 (hereinafter Belknap).

Argument 1 (page 9 paragraph 1):

- "Oh fails to disclose applying a window function to the remaining frames (i.e., the frames that were not skipped)."

Response to argument 1:

Examiner takes the position that Oh teaches a speed variable audio playback apparatus, wherein if audio play-back speed is to be decreased, additional speech sources are added while still maintaining the interval of neighboring

speech sources, thereby lengthening audio signals. On the other hand, a doubling of the audio play-back speed is achieved by selecting every other speech source while still maintaining the interval of neighboring speech sources and re-synthesizing the selected speech sources using the audio characteristic. Oh also teaches that the audio characteristic control unit of the pitch modulating unit 4 performs a signal modulation by applying a window function (Oh col. 5 line 58 - col. 6 line 2).

Though, Oh teaches selecting every other speech source as well as a window function application, Oh does not specifically teach skipping frames and identifying the remaining frames for processing/playback application. However, Belknap teaches a playback system to control frames of digital information, wherein every other frame could be included in a sequence of compressed frames and the resulting subset of compressed frames yields a two-times faster data presentation than the original digital frames. In another alternative, a repeating sequence could be created in which one digital frame is skipped, the next digital frame is translated into a compressed frame, then two digital frames are skipped before the next compressed frame is created. This asymmetric repeating sequence is possible since there are no dependencies between the compressed images with respect to the scanning function. Therefore, almost any scanning rate may be achieved by the present invention. A "frame" is typically digital data that represents an independent, single sample of digital information

(Belknap col. 5 lines 44-59 & Fig. 1 item 115). Further, Belknap also teaches applications of playback control to audio and video, wherein additional speeds could be generated by skipping over frames and only displaying identified frames to achieve a wide range of display speeds, again in either forward or reverse order (Belknap col. 9 lines 4-15 & Fig. 1 item 115). By *skipping frames*, only the remaining frames (i.e. *identified frames*) will be present, and a windowing function as taught by Oh can be applied to vary the playback speed of the audio or video.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4-6, 9-11, and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh et al. US 5781696 (hereinafter Oh) in view of Belknap et al. US 7356245 B2 (hereinafter Belknap).

Re claims 1, 6, and 11, Oh teaches method for speeding up an encoded original audio signal, said original audio signal having an original frequency and original playback speed, said method comprising:

retrieving frames of the original audio signal (Fig. 5);

wherein said desired playback speed is greater than the original playback speed (col. 5 lines 60-65);

applying a window function to the remaining frames (col. 5 line 65 – col. 6 line 2);

converting the signal with the windowed frames from digital to analog format;

using the original frequency to playback the analog format signal (col. 6 lines 38-46)

However, Oh fails to teach receiving the encoded original audio signal;

skipping frames at a rate according to a desired playback speed;

Belknap teaches a playback system to control frames of digital information, wherein every other frame could be included in a sequence of compressed frames and the resulting subset of compressed frames yields a two-times faster data presentation than the original digital frames. In another alternative, a repeating sequence could be created in which one digital frame is skipped, the next digital frame is translated into a compressed frame, then two digital frames are skipped before the next compressed frame is created (Belknap col. 5 lines 44-59 & Fig. 1 item 115). This asymmetric repeating sequence is possible since there are no dependencies between the compressed images with respect to the scanning function. Therefore, almost any scanning rate may be achieved by the present invention. A "frame" is typically digital data that represents an independent, single sample of digital information.

Further, Belknap also teaches applications of playback control to audio and video, wherein additional speeds could be generated by skipping over frames and only

displaying identified frames to achieve a wide range of display speeds, again in either forward or reverse order (Belknap col. 9 lines 4-15 & Fig. 1 item 115).

Belknap also teaches encoded video and audio frames used during the playback of framed digital data (Belknap col. 8 lines 51-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention receiving the encoded original audio signal, skipping frames at a rate according to a desired playback speed, and applying a window function to the remaining frames for the purposes of creating several playback speeds based on various sequences of frames skipped (the order is not necessarily every other frame), wherein faster data representation and compression are achieved.

Re claims 4, 9, and 14, method according to claim 1 wherein the desired playback speed is a predefined default value (col. 6 lines 34-38).

Re claims 5, 10, and 15, method according to claim 1 wherein the desired playback speed is a programmable value (col. 6 lines 34-38).

Re claims 16-18, Oh fails to teach the method of claim 1, wherein skipping frames at a rate according to a desired playback speed further comprises skipping frames at a rate according to a desired playback speed, wherein the frames correspond to time intervals.

Belknap teaches a playback system to control frames of digital information, wherein every other frame could be included in a sequence of compressed frames and the resulting subset of compressed frames yields a two-times faster data presentation than the original digital frames. In another alternative, a repeating sequence could be created in which one digital frame is skipped, the next digital frame is translated into a compressed frame, then two digital frames are skipped before the next compressed frame is created (Belknap col. 5 lines 44-59 & Fig. 1 item 115). This asymmetric repeating sequence is possible since there are no dependencies between the compressed images with respect to the scanning function. Therefore, almost any scanning rate may be achieved by the present invention. A "frame" is typically digital data that represents an independent, single sample of digital information.

Further, Belknap also teaches applications of playback control to audio and video, wherein additional speeds could be generated by skipping over frames and only displaying identified frames to achieve a wide range of display speeds, again in either forward or reverse order (Belknap col. 9 lines 4-15 & Fig. 1 item 115).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention skipping frames at a rate according to a desired playback speed, wherein the frames correspond to time intervals for the purposes of creating several playback speeds based on various sequences of frames skipped (the order is not necessarily every other frame), wherein faster data representation and compression are achieved due to the skipping of frames.

5. Claims 2, 3, 7, 8, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh et al. US 5781696 (hereinafter Oh) in view of Belknap et al. US 7356245 B2 (hereinafter Belknap) and further in view of Tsushima et al. US 7269550 B2 (hereinafter Tsushima).

Re claims 2, 7, and 12, Oh in view of Belknap fails to teach the method according to claim 1 wherein the encoded original audio signal is encoded in the frequency domain using one of a plurality of encoding schemes, the method further comprising frequency-domain decoding of the encoded original audio signal.

Tsushima teaches a frequency spectrum generating unit 1204 decodes the input encoded data, further inverse-quantizes it, and generates a frequency spectrum on the frequency axis. The frequency transforming unit 1203 transforms the input time-frequency signal from the frequency spectral coefficient in the time domain to the frequency spectral coefficient in the frequency domain based on a unit of a number of samples less than the ones in a frame by using a transform expression equivalent to inverse transform of the transform expression used by the time transforming unit 204 of the encoding device 200 (Tsushima col. 12 line 52 – col. 13 line 24). Data, which indicates a temporal change expressed in the time-frequency signal, is reflected on the frequency spectral coefficient obtained as a result of the partial transform to the frame according to above, and this frequency spectral coefficient is output to the frequency-time transforming unit 1205. In the frequency-time transforming unit 1205, a transform method, which is an inverse process of the time-frequency transforming unit 201 conducted in the encoding device 200, is used. For example, if the MDCT transform is

used in the time-frequency transforming unit 201 in the encoding device 200, inverse MDCT transform is used in the frequency-time transforming unit 1205.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention an encoded original audio signal is encoded in the frequency domain using one of a plurality of encoding schemes, the method further comprising frequency-domain decoding of the encoded original audio signal for the purposes of processing digital data, wherein analysis in both the time and frequency domain can be accomplished on a frame by frame basis through the use of various transforms. Additionally, it is well known to transform data from the frequency domain to the time domain and vice-versa, wherein digital signal processing in itself is based upon the transformation and decomposition of digital data into components.

Re claims 3, 8, and 13, Oh in view of Belknap fails to teach the method according to claim 2 wherein said decoding comprises:

decoding said encoded signal using a decoding scheme corresponding to said one of a plurality of encoding schemes; applying an inverse transform to the encoded audio signal; and applying an inverse window function.

Tsushima teaches a frequency spectrum generating unit 1204 decodes the input encoded data, further inverse-quantizes it, and generates a frequency spectrum on the frequency axis. The frequency transforming unit 1203 transforms the input time-frequency signal from the frequency spectral coefficient in the time domain to the frequency spectral coefficient in the frequency domain based on a unit of a number of

samples less than the ones in a frame by using a transform expression equivalent to inverse transform of the transform expression used by the time transforming unit 204 of the encoding device 200 (Tsushima col. 12 line 52 – col. 13 line 24). Data, which indicates a temporal change expressed in the time-frequency signal, is reflected on the frequency spectral coefficient obtained as a result of the partial transform to the frame according to above, and this frequency spectral coefficient is output to the frequency-time transforming unit 1205. In the frequency-time transforming unit 1205, a transform method, which is an inverse process of the time-frequency transforming unit 201 conducted in the encoding device 200, is used. For example, if the MDCT transform is used in the time-frequency transforming unit 201 in the encoding device 200, inverse MDCT transform is used in the frequency-time transforming unit 1205.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention decoding said encoded signal using a decoding scheme corresponding to said one of a plurality of encoding schemes; applying an inverse transform to the encoded audio signal; and applying an inverse window function for the purposes of processing digital data, wherein analysis in both the time and frequency domain can be accomplished on a frame by frame basis through the use of various transforms. Additionally, it is well known to transform data from the frequency domain to the time domain and vice-versa, wherein digital signal processing in itself is based upon the transformation and decomposition of digital data into components.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6711212 B1, US 6018706 A, US 20020128822 A1, US 7043433 B2, US 7321851 B2.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Colucci whose telephone number is (571)-270-1847. The examiner can normally be reached on 9:30 am - 6:00 pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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